REMARKS

The claims now pending in the application are Claims 1 to 3, 6 to 11 and 19 to 22, the independent claims being Claims 1, 11 and 19 to 22. Claims 1, 9, 11 and 19 to 22 have been amended.

In the Official Action dated January 11, 2002, Claim 6 was rejected under 35 U.S.C. § 112, first paragraph, as not enabled, Claims 19 to 22 were rejected under 35 U.S.C. § 112, first paragraph, as not supported by the original disclosure. Claims 19 to 22 further were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 9/7/1, 21 and 22 were objected to under 37 CFR § 1.75. Claims 1 to 3, 6 to 9 and 11 were rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 4,889,406 (Sezerman), in view of U.S. Patent No. 5,652,922 (Kohno). Claim 10 was rejected under 35 U.S.C. § 103(a), as unpatentable over the Sezerman '406 patent and the Kohno '922 patent, further in view of U.S. Patent No. 4,780,640 (Hasegaw). Reconsideration and withdrawal of the objections and rejections respectfully are requested in view of the above amendments and the following remarks.

Initially, in a formal matter, the objection to the drawings respectfully is traversed. In this regard, the Examiner's attention is directed to Figure 4 and the corresponding text in the subject application, wherein Applicants fully disclose a deformation restricting member (reinforcement plate 119) disposed between the plurality of coupling members (self-tapping screws 145) and the first holding member (third lens unit holding frame 109); although the second holding member (sixth lens holding frame 118) is disposed between the deformation restricting member (119) and the first holding

member (109), Applicants submit the structure of Figure 4, and the corresponding text, fully supports the subject claim language.

The Examiner's formal rejection of Claim 6 respectfully is traversed. Applicants note that the language objected to by the Examiner ("wherein the restricting member is disposed between the first and second holding members") is not present in Claim 6. Accordingly, Applicants believe the rejection is in error.

The formal rejection of Claims 19 to 22 respectfully is traversed. Nevertheless, without conceding the propriety of the rejection, Claims 19 to 22 have been amended more clearly to recite the feature "wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a second through hole portion for receiving a respective one of said plurality of coupling members." Further, each of Claims 20 and 21 has been amended to recite the feature "wherein said deformation restricting member includes a plurality of first through hole portions for receiving said plurality of coupling members", as suggested by the Examiner. Accordingly, Applicants believe the formal rejections are traversed or moot.

The double patenting objections/rejections respectfully are traversed. Nevertheless, without conceding the propriety of the rejection, Claim 9 has been amended to recite more clearly the feature wherein "the friction preventing member serves also as the deformation restricting member," which is not recited in either independent Claim 1 or intervening Claim 7. Reconsideration of Claims 20 and 21 respectfully are requested in view of the amendments thereto.

The rejections of the claims over the art respectfully are traversed. The present invention relates to a novel optical-element holding mechanism. As now recited in independent Claim 1, the optical-element holding mechanism comprises a first holding member arranged to hold a first optical element, a second holding member arranged to hold a second optical element, and a plurality of coupling members arranged to couple the first holding member and the second holding member, and to permit relative positions of the first holding member and the second holding member to be varied *in a vertical direction* in the process of being coupled; a plurality of urging members respectively are disposed between each of the plurality of coupling members and the second holding member, and are arranged to urge and press the second holding member against the first holding member at least when the plurality of coupling members are in the process of coupling the first holding member and the second holding member through alignment of respective optical axes of the first optical element and the second optical element. A deformation restricting member is disposed between the plurality of coupling members and the first holding member and arranged to restrict deformation of the first holding member while relative positions of the first holding member and the second holding member are in the process of being varied, when the plurality of coupling members are in the process of coupling the first holding member and the second holding member.

Independent Claims 11, 19, 20, 21 and 22 recite similar features with respect to an optical apparatus or an optical coupling mechanism.

Applicants submit that the prior art fails to anticipate the present invention. Moreover, Applicants submit that there are differences between the subject matter sought

to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious at the time the invention was made to one of ordinary skill in the art.

The Sezerman '406 patent relates to tilt adjustable optical fibre connectors, and discloses an adjustable connector for optically connecting one optical fibre to another fibre or a light source. However, Applicants submit that the Sezerman '406 patent fails to disclose or suggest at least the above-described features of the present invention. Nowhere is the Sezerman '406 patent understood to disclose or suggest at least the feature of a deformation restricting member, as disclosed and claimed in the present application. Rather, as acknowledged by the Examiner, the Sezerman '406 patent teaches the feature of a deformable angular ring 32 disposed between the first holding member and the second holding member. Applicants submit that these structures are distinguished and provide substantially different functions in the respective structures.

The Kohno '922 patent relates to a zoom lens mechanism, and was cited merely for its disclosure of "urging members," in the form of disposable washers, used in conjunction with coupling members in the form of screws, for coupling two elements together. Applicants submit that the Kohno '922 patent fails to disclose or suggest at least the above-described features of the present invention. Nor is the Kohno '922 patent understood to add anything to the Sezerman '406 patent that would remedy the above-discussed deficiencies or otherwise make obvious the claimed invention.

The Hasegawa '640 patent relates to a projection television receiver with liquid-cooled lens, and discloses a projection television receiver comprising a lens mounted adjacent to the face for focusing images projected by the tube, including a coupling system comprising a screw, a washer and a press plate, wherein the coupling

system is used to couple the two systems together. However, Applicants submit that the Hasegawa '640 patent fails to disclose or suggest at least the above-described features of the present invention. Nowhere is the Hasegawa '640 patent understood to remedy the deficiencies of the Sezerman '406 patent and the Kohno '922 patent, or otherwise make obvious the claimed invention.

For the above reasons, Applicants submit that independent Claims 1, 11 and 19 to 22 are allowable over the cited art.

Claims 2, 3 and 6 to 10 depend from Claim 1, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of independent Claim 1, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submit that the application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Attorney for Applicants
Registration No. 32,078

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
CPW\gmc

DC_MAIN 92999v1

VERSION WITH MARKS TO SHOW CHANGES MADE TO CLAIMS

1. (Three Times Amended) An optical-element holding mechanism comprising:

a first holding member arranged to hold a first optical element;

a second holding member arranged to hold a second optical element;

a plurality of coupling members arranged to couple said first holding member and said second holding member, and to permit relative positions of said first holding member and said second holding member to be varied in a vertical direction in the process of being coupled;

a plurality of urging members respectively disposed between each of said plurality of coupling members and said second holding member, and arranged to urge and press said second holding member against said first holding member at least when said plurality of coupling members are in the process of coupling said first holding member and said second holding member through alignment of respective optical axes of the first optical element and the second optical element; and

a deformation restricting member[, having a substantially annular shape,] disposed between said plurality of coupling members and said first holding member and arranged to restrict deformation of said first holding member while relative positions of said first holding member and said second holding member are in the process of being

varied, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member.

9. (Twice Amended) An optical-element holding mechanism according to claim 7, [further comprising a deformation restricting member arranged to restrict deformation of said first holding member while the relative positions of said first holding member and said second holding member are in the process of being varied and when said plurality of coupling members are in the process of coupling said first holding member and said second holding member,] wherein said friction preventing member serves also as said deformation restricting member.

11. (Three Times Amended) An optical apparatus comprising:

an apparatus body; and

an optical-element holding mechanism including:

a first holding member arranged to hold a first optical element;

a second holding member arranged to hold a second optical element;

a plurality of coupling members arranged to couple said first holding member and said second holding member, and to permit relative positions of said first holding member and said second holding member to be varied in a vertical direction in the process of being coupled;

a plurality of urging members respectively disposed between each of said plurality of coupling members and said second holding member, and arranged to urge

and press said second holding member against said first holding member at least when said plurality of coupling members are in the process of coupling said first holding member and said second holding member through alignment of respective optical axes of the first optical element and the second optical element; and

a deformation restricting member[, having a substantially annular shape,] disposed between said plurality of coupling members and said first holding member and arranged to restrict deformation of said first holding member while relative positions of said first holding member and said second holding member are in the process of being varied, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member.

19. (Amended) An optical-element holding mechanism comprising:

a first holding member arranged to hold a first optical element;

a second holding member arranged to hold a second optical element;

a plurality of coupling members arranged to couple said first holding member and said second holding member, and to permit relative positions of said first holding member and said second holding member to be varied in the process of being coupled;

a plurality of urging members respectively disposed between each of said plurality of coupling members and said second holding member, and arranged to urge and press said second holding member against said first holding member at least when said plurality of coupling members are in the process of coupling said first holding member and

said second holding member through alignment of respective optical axes of the first optical element and the second optical element; and

a deformation restricting member[, having a substantially annular shape,] disposed between said plurality of coupling members and said first holding member and arranged to restrict deformation of said first holding member while relative positions of said first holding member and said second holding member are in the process of being varied, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member;

wherein said deformation restricting member includes a plurality of first through hole portions for receiving one of said plurality of coupling members;

wherein said first holding member includes an extended portion extended in the direction of the optical axis of said first optical element, said extended portion including a plurality of abutting faces and a plurality of receiving portions for receiving the plurality of coupling members; and

wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a [plurality of] second through hole portion [portions] for receiving a respective one of said plurality of coupling members.

20. (Amended) An optical apparatus comprising:

an apparatus body; and

an optical-element holding mechanism including:

a first holding member arranged to hold a first optical element;

a second holding member arranged to hold a second optical element;

a plurality of coupling members arranged to couple said first holding member and said second holding member, and to permit relative positions of said first holding member and said second holding member to be varied in the process of being coupled;

a plurality of urging members respectively disposed between each of said plurality of coupling members and said second holding member, and arranged to urge and press said second holding member against said first holding member at least when said plurality of coupling members are in the process of coupling said first holding member and said second holding member through alignment of respective optical axes of the first optical element and the second optical element; and

a deformation restricting member[, having a substantially annular shape,] disposed between said plurality of coupling members and said first holding member and arranged to restrict deformation of said first holding member while relative positions of said first holding member and said second holding member are in the process of being varied, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member;

wherein said deformation restricting member includes a plurality of first through hole portions for receiving one of said plurality of coupling members;

wherein said first holding member includes an extended portion extended in the direction of the optical axis of said first optical element, said extended portion including a plurality of abutting faces and a plurality of receiving portions for receiving the plurality of coupling members; and

wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a [plurality of] second through hole portion [portions] for receiving a respective one of said plurality of coupling members.

21. (Amended) An optical coupling mechanism, comprising:

a first holding member that holds a first optical element having a first optical axis;

a second holding member that holds a second optical element having a second optical axis;

a plurality of coupling members arranged to couple said first holding member and said second holding member at a position, selected within a range of relative movement between said first holding member and said second holding member, in which the first optical axis and the second optical axis are substantially aligned;

a plurality of urging members, respectively disposed between each of said plurality of coupling members and said second holding member, that urge and press said second holding member against said first holding member within the range of relative movement between said first holding member and said second holding member; and

a deformation restricting member, disposed between each of said plurality of coupling members and said first holding member, that restricts deformation of the first holding member within the range of relative movement between said first holding member and said second holding member;

wherein said deformation restricting member includes a plurality of first through hole portions for receiving one of said plurality of coupling members;

wherein said first holding member includes an extended portion extended in the direction of the optical axis of said first optical element, said extended portion including a plurality of abutting faces and a plurality of receiving portions for receiving the plurality of coupling members; and

wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a [plurality of] second through hole portion [portions] for receiving a respective one of said plurality of coupling members.

22. (Amended) An optical apparatus comprising:

an apparatus body; and

an optical coupling mechanism, comprising:

a first holding member that holds a first optical element having a first optical axis;

a second holding member that holds a second optical element having a second optical axis;

a plurality of coupling members arranged to couple said first holding member and said second holding member at a position, selected within a range of relative movement between said first holding member and said second holding member, in which the first optical axis and the second optical axis are substantially aligned;

a plurality of urging members, respectively disposed between each of said plurality of coupling members and said second holding member, that urge and press said second holding member against said first holding member within the range of relative movement between said first holding member and said second holding member; and

a deformation restricting member, disposed between each of said plurality of coupling members and said first holding member, that restricts deformation of the first holding member within the range of relative movement between said first holding member and said second holding member;

wherein said deformation restricting member includes a plurality of first through hole portions for receiving one of said plurality of coupling members;

wherein said first holding member includes an extended portion extended in the direction of the optical axis of said first optical element, said extended portion including a plurality of abutting faces and a plurality of receiving portions for receiving the plurality of coupling members; and

wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a [plurality of] second through hole portion [portions] for receiving a respective one of said plurality of coupling members.

CPW\gmc

DC_MAIN 93731 v 1